FRIDAY AFTERNOON -- MARCH 26, 1971

BIOLOGICAL SCIENCES SECTION

2:00 P.M. BIOLOGICAL SCIENCES SECTION - - J. L. Simon, Presiding. Room 19.

BS-11 The Effect of Temperature and Salinity Upon the Metabolic Rate of the Stone Crab, Menippe mercenaria (Say). EDWARD S. BENDER, Univ. of Florida.--This paper will discuss the effect of temperature and salinity upon the oxygen consumption rate of juvenile stone crabs. Crabs were acclimated to each change in environmental conditions. The animals were maintained on at constant light and dark cycles (12:12) with constant humidity. Experiments included a diurnal test which indicated a metabolic peak corresponding with high tide. The results compared favorably with field observations. The effect of size, weight, and growth were also discussed.

BS-12 Physicological Thermoregulation in Four Species of Turtle. D.C. SPRAY * and M.L. MAY, University of Florida. - - Heating and cooling rates of four species of turtle were obtained under various conditions of humidity and air flow, and these values are compared with those obtained for other reptiles in the literature. The two basking species (Pseudemys scripta and Chrysemys picta) had lower cooling:heating ratios than did the two terrestrial species (Gopherus polyphemys and Terrapene carolina). The cooling:heating ration of Chrysemys was increased to the same value in the dead animal and after deafferentation of the carapace. We interpret these findings as evidence for control of heat input and output through carapace vasomotion.

*Research partially supported by NIMH Predoctoral Fellowship #10320.

BS-13 Characteristics of the Cellulolytic Enzyme Complex in Certain Filamentous Marine Fungi.* J. R. JENSEN, P. L. SGUROS, Florida Atlantic Univ.--Halosphaeria mediosetigera and Culcitalna achraspora have been under study to elucidate the mechanism by which they degrade cellulostic materials in the sea. Standardized shake-cultures were grown on cellulose or cellulose derivatives supplemented with NH_4NO_3, tris (hydroxymethyl) aminomethane and yeast extract in artificial seawater (Lyman and Fleming), pH 7.5, at 25 C. Induced C_1, C_x and cellobiase activities were determined colorimetrically, after correlation with cotton fiber weight loss, by the formation of reducing sugars from carboxymethylcellulose and by Glucostat, respectively. Filtrates of Alphacel-grown H. mediosetigera and cotton-grown C. achraspora showed respective cellobiases to have similar temperature and pH optima and stability characteristics, while those of C_x enzymes differed notably. Data indicate that at least three enzymatic functions are involved in cellulose breakdown by these cultures.

*Research supported by the Office of Naval Research.

BS-14 Investigations on the Antigenicity of Red Blood Cells from Mugil cephalus in Florida Waters. JOHN A CIDLOWSKI, Univ. of South Florida.--Immunological techniques have been employed in studying the possibility of specific isolated breeding populations of the striped mullet; Mugil cephalus. Antisera with titers